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DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
JOSEPH A. HOLMES, DIRECTOR

PROBLEMS OF THE PETROLEUM INDUSTRY

RESULTS OF CONFERENCES AT PITTSBURGH, PA. AUGUST 1 AND SEPTEMBER 10, 1913

BY

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CONTENTS.

Page.
Preface 3
Introduction 5
Preliminary correspondence 5
  Arrangements for conferences 7
  Conference invitations issued 7
Opening session of first conference 9
  Address of welcome 9
  Chairman's preliminary remarks 9
  Résumé of discussion 10
  Views of different representatives 11
  Appointment and personnel of committee on organization 15
Closing session of first conference 15
Invitations issued for second conference 15
Second conference 16
Constitution of the American Petroleum Society 16
Publications on petroleum technology 20

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PREFACE.

The Bureau of Mines is concerned primarily with safety in mining and with the increase of efficiency in the production and utilization of mineral products. As there is at present great waste in the production and handling of petroleum and natural gas, and this waste can be minimized by proper methods, it is most important that a thorough study of the problems involved be carried on as rapidly as possible with a view to reducing waste and improving the quality of the products.

A large amount of valuable information regarding these problems has been collected by men actively engaged in the petroleum industry. In order that this information might be made available and that further information might be gained, men interested in the petroleum industry were invited to attend conferences at Pittsburgh, Pa., for the purpose of organizing inquiries of national scope through which the knowledge in the possession of different investigators could be made available for the general good.

Persons interested in the petroleum industry were cordially invited to participate in the work of these conferences and to take an active part in the proceedings.

JOSEPH A. HOLMES.

PROBLEMS OF THE PETROLEUM INDUSTRY; RESULTS OF CONFERENCES AT PITTSBURGH, PA., AUGUST 1 AND SEPTEMBER 10, 1913.

By Irving C. Allen.

INTRODUCTION.

The technical papers and bulletins on petroleum technology that are being published by the Bureau of Mines are intended to cover the various phases of the petroleum industry, with especial reference to safety and the prevention of waste. Hence, they cover not only the methods of sinking and finishing oil and gas wells, but the handling of petroleum and natural gas, the increase of efficiency in utilization, methods of analysis, and the preparation of specifications for the purchase of petroleum and its products by the Government.

In an endeavor to carry out its petroleum investigations without unnecessary duplication of effort and to enlist the cooperation of chemists, engineers, and geologists in its endeavor to increase safety and efficiency in the petroleum industry, the Bureau of Mines from time to time sought to obtain expressions of opinion regarding particular phases of the industry from those persons most competent to speak with authority.

So freely were these opinions given and so great was the interest shown in the work being done by the bureau that finally it was decided to call a general conference of persons who were, in one way or another, especially interested in petroleum technology, with the purpose of discussing how efforts to increase efficiency might be coordinated and made most effective.

PRELIMINARY CORRESPONDENCE.

The first move of the Bureau of Mines in its efforts to bring about coordinated effort in the attempt to increase efficiency in the production and utilization of petroleum was made in connection with the preparation of specifications for petroleum products, a circular letter being sent to a large number of scientific and technical men asking their cooperation. This letter was sent out in July, 1912,

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and was followed on February 19 and 28, 1913, by two other letters. The letters were as follows:

LETTER OF JULY 15, 1912.

SIR: The Bureau of Mines, in its efforts to increase efficiency in the utilization of mineral products, including petroleums, has undertaken the preparation of specifications for certain petroleum products purchased by the Government. The preparation of such specifications is deemed necessary because of the wide differences of opinion among manufacturers and consumers of these products and because of the lack of uniformity in the specifications now in use.

The preparation of scientific specifications for petroleum products is difficult, necessitates a large amount of critical research, and requires a considerable time for completion.

I believe the preparation of these specifications, in fairness to all concerned, can be best carried out by obtaining the cooperation of competent men who have had training in research work and have available a well-equipped laboratory. The work is in cooperation with committees of the American Chemical Society, the American Society for Testing Materials, the National Petroleum Association, the National Fire Protection Association, and the International Petroleum Commission.

For this reason, therefore, I am writing to request that at your earliest convenience you forward me your recommendations as to men who, in your opinion, are fitted by training and experience to cooperate in the preparation of specifications for petroleum products, in order that recommendations based on scientific principles may be made independently by a number of qualified experts.

Very respectfully, J. A. HOLMES, *Director*.

LETTER OF FEBRUARY 19, 1913.

SIR: In continuation of correspondence addressed to you July 15, 1912, by the director asking your cooperation in the testing of petroleum products:

I am having forwarded you under separate cover, from Washington, Technical Paper 36, "The Preparation of Specifications for Petroleum Products," for your information.

You are asked to note (p. 9) the list of problems for which uniform methods of testing must be somewhat definitely established before it will be possible to formulate specifications for the various products themselves (p. 10).

Please forward me at your earliest convenience a brief as to the problem or test in which you particularly desire to cooperate, and for which you have the necessary laboratory equipment, as well as your views as to the manner of undertaking the work.

Your prompt reply is desired in order that the cooperative work may be arranged with as little delay as possible.

Your recommendation of other men capable and willing to work with us will be greatly appreciated.

Very respectfully, IRVING C. ALLEN, *Petroleum Chemist*.

LETTER OF FEBRUARY 28, 1913.

SIR: The Bureau of Mines in its effort to increase efficiency in the utilization of mineral products, including petroleums, has undertaken the preparation of specifications for certain petroleum products purchased by the Government. The preparation of such specifications is deemed necessary because of the wide differences of opinion among manufacturers and consumers of these products and because of the lack of uniformity in the specifications now in use.

The preparation of scientific specifications for petroleum products is difficult, necessitates a large amount of critical research, and requires a considerable time for completion.

It is believed the preparation of these specifications, in fairness to all concerned, can be best carried out by obtaining the cooperation of competent men who have had training in research work and have available a well-equipped laboratory. The work is in cooperation with committees of the American Chemical Society, the American Society for Testing Materials, the National Petroleum Association, the National Fire Protection Association, and the International Petroleum Commission.

For this reason, therefore, I am writing to request that at your earliest convenience you forward to Mr. I. C. Allen, Bureau of Mines, Fortieth and Butler Streets, Pittsburgh, Pa., your recommendations as to men who, in your opinion, are fitted by training and experience to cooperate in the preparation of specifications for petroleum products, in order that recommendations based on scientific principles may be made independently by a number of qualified experts.

For your information Technical Paper 36, "The Preparation of Specifications for Petroleum Products," will be sent to you. You will please note (p. 9) the list of problems for which uniform methods of testing must be somewhat definitely established before it will be possible to formulate specifications for the various products themselves (p. 10).

Please forward to Mr. Allen at Pittsburgh, at your earliest convenience, a brief as to the problem or test in which you may particularly desire to cooperate, and for which you have the necessary laboratory equipment, as well as your views as to the manner of undertaking the work.

Your prompt reply is desired in order that the cooperative work may be arranged with as little delay as possible.

Very respectfully,

J. A. HOLMES, *Director*.

ARRANGEMENTS FOR CONFERENCES.

Many replies were received to these letters, the writers almost without exception expressing a willingness to cooperate in the work, but suggesting that a detailed plan of procedure should be outlined if the work was to become truly cooperative, and suggesting also that all men interested in the petroleum industry should be invited to participate.

It was believed, however, that it was neither practicable nor just for the bureau to outline in detail plans for an exhaustive study of petroleum without the cooperation of men engaged in the industry. Therefore a movement was started to form a general organization or society in which these men could cooperate.

CONFERENCE INVITATIONS ISSUED.

On July 3, 1913, invitations were sent to the secretaries of the great national scientific societies to attend a conference to be held August 1, 1913, at Pittsburgh, Pa., to consider the organization of a national petroleum society. The secretaries of the national scientific societies were invited because it was practicable to communicate with them and because they were familiar with methods of organizing and conducting great societies. It was not practicable to communicate with all of the 30,000 men engaged in the petroleum industry without a great deal of correspondence and consequent delay, nor was it considered necessary for a large number of men to attend conferences held for the purpose of effecting an organization.

The names and official addresses of the secretaries who were invited to attend the conference are given below, together with the names of those who actually represented the different societies at the conference:

American Chemical Society, Dr. C. L. Parsons, secretary, P. O. box 505, Washington, D. C.; represented by G. D. Chamberlain, Edgar Thompson Steel Co., Braddock, Pa. American Society for Testing Materials, Edgar Marburg, secretary, University of Pennsylvania, Philadelphia, Pa.; represented by the secretary. National Petroleum Association, C. D. Chamberlin, secretary, 1017–1019 Rose Building, Cleveland, Ohio; represented by the secretary. National Fire Protection Association, F. H. Wentworth, secretary, 87 Milk Street, Boston, Mass.; represented by W. H. Coster, inspector, department of public safety, Pittsburgh, Pa. Independent Petroleum Marketers' Association of the United States, W. C. Platt, secretary, Rose Building, Cleveland, Ohio; represented by the secretary. Engineers' Society of Western Pennsylvania, E. K. Hiles, secretary, Oliver Building, Pittsburgh, Pa.; represented by the secretary. Natural Gas Association of America, T. C. Jones, secretary, Delaware, Ohio; represented by I. N. Knapp, 116 Ardmore Avenue, Ardmore, Pa. Gasoline Producers' Association, E. B. Rich, secretary, Parkersburg, W. Va.; represented by the secretary. American Automobile Association, J. N. Brooks, secretary, 437 Fifth Avenue, New York City; represented by John A. Hawkins, Keenan Building, Pittsburgh, Pa. American Association for Highway Improvement, J. E. Pennybacker, jr., secretary, Colorado Building, Washington, D. C.; represented by C. P. Light, Washington, D. C. Society of Automobile Engineers, C. F. Clarkson, general manager, 1786 Broadway, New York City; represented by the general manager. American Association of Consulting Engineers, W. O. Snelling, secretary, 7440 Finance Street, Pittsburgh, Pa.; represented by the secretary. American Mine Safety Association, H. M. Wilson, chairman of the executive committee, Bureau of Mines, Pittsburgh, Pa.; represented by the chairman of the executive committee. American Society of Civil Engineers, C. W. Hunt, secretary, 220 West Fifty-seventh Street, New York City; represented by H. M. Wilson, Bureau of Mines, Pittsburgh, Pa. American Mining Congress, F. J. Callbreath, secretary, Denver, Colo. Paint Manufacturers' Association of the United States, G. B. Heckel, secretary, 636 The Bourse, Philadelphia, Pa.; represented by J. E. Staud, chemist, W. W. Lawrence & Co., Pittsburgh, Pa. Western Petroleum Refiners' Association, C. F. Martin, secretary, Central National Bank Building, Tulsa, Okla. Independent Oil Producers' Agency of California, W. B. Robb, secretary, Bakersfield, Cal.; W. W. Orcutt, Union Oil Building, Los Angeles, Cal. Chamber of Mines & Oil, G. M. Swindell, secretary, Los Angeles, Cal. National Paint, Oil & Varnish Association, F. P. Cheesman, secretary, 100 William Street, New York City; Edwin Thompson, president, Pittsburgh Paint, Oil & Varnish Club, Pittsburgh, Pa. Independent Oil & Gas Producers' Association of Oklahoma, A. E. Watts, secretary, Tulsa, Okla. American Institute of Mining Engineers, Joseph Struthers, secretary, 29 West Thirty-ninth Street, New York City; represented by B. A. Robinson, assistant secretary, New York City. American Society of Mechanical Engineers, C. W. Rice, secretary, 29 West Thirty-ninth Street, New York City; represented by H. E. Longwell, construction engineer, Westinghouse Machine Co., Pittsburgh, Pa. Western Wholesale Oil Jobbers' Association, E. C. Winters, secretary, Progressive Oil Co., Kansas City, Mo. Refined Oil Jobbers' Association, E. C. Winters, secretary, Progressive Oil Co., Kansas City, Mo. Louisiana Conservation Commission, J. W. Smith, secretary, Shreveport, La.

OPENING SESSION OF FIRST CONFERENCE.

ADDRESS OF WELCOME.

The conference called as a result of the invitations mentioned met in Pittsburgh on the scheduled date, August 1, 1913. The conference was called to order by H. M. Wilson, engineer in charge of the Pittsburgh station of the Bureau of Mines, who welcomed the representatives as follows:

Although it is a little past the time provided for calling this meeting to order, there is an earnest little group of us here; the hot weather has, no doubt, prevented a larger attendance. Director Joseph A. Holmes, of the Bureau of Mines, who is absent in Alaska, has asked me to say a few words of welcome to you. He hopes to have your cooperation in considering the matters about which Mr. Irving C. Allen, petroleum chemist of the Bureau of Mines, has written you. It seems to be a most propitious time to get together on these questions of petroleum technology and to determine what can be done to arrive at some mutual understanding among the various associations and interests concerned.

I think it would be wise if you organized informally as a conference; if anything further is to come out of this conference, that is a matter which is left in your own hands. I thank you very much for your attendance and for your support of this meeting.

I suggest, with your concurrence, that Mr. Allen, who called this conference, be asked to act temporarily as chairman.

CHAIRMAN'S PRELIMINARY REMARKS.

Mr. Allen was made temporary chairman and spoke as follows:

I will endeavor to supplement Mr. Wilson's words by telling you more in detail why you are asked to come here to-day. The Bureau of Mines, in its effort to increase efficiency in the utilization of mineral products, including petroleum, undertook in 1907 the study of petroleum and the preparation of specifications for certain petroleum products purchased by the Government. The preparation of uniform specifications was deemed necessary because of the wide differences of opinion among manufacturers and consumers of these products and because of the lack of uniformity in the specifications then in use.

The first step in undertaking this new work, after the establishing of testing stations in Pittsburgh and San Francisco, was to consult the published books on petroleum that were available. The information found therein was insufficient for the bureau's purpose. The next step in the search for information was to consult periodicals and technical journals. To make this information usable it was found necessary to catalog or tabulate the enormous mass of materials available, to search out the real information from the seeming information and the misinformation, and to arrange the information of value so that it could be used by the men who were working with these problems.

From this beginning there has been compiled a bibliography on petroleum that now comprises more than 32,000 references, and when finished will include references to practically all published literature on petroleum, including natural gas and bitumen. The bibliography is now divided into 124 subjects, and is becoming increasingly useful.

The cataloging of the published literature, however, although necessary for a thorough scientific study of any subject, is in itself only one step in the work. The study of articles found in the literature naturally leads to correspondence with some of their authors, and this in turn leads to communication with other men, and through these men to still other men. From this correspondence the bureau has listed the names of some hundreds of men interested and actively engaged in the study of petroleum.

Men interested in a common problem naturally organize into a group or committee to study that problem; thus it has developed that there is now working on this subject, within the United States alone, a total of some 30 committees from a number of the great national scientific societies and commercial organizations. These committees and men are working independently of one another and often are studying the same or similar problems. Because all of these forces are working to the same end—that is, the acquiring of a better knowledge of petroleum and its products—greater efficiency will be gained if these committees and men work in cooperation with one another. In order to bring the various interests together into an efficient organization, there was sent from the Bureau of Mines, on July 2, 1913, the following letter:

LETTER OF JULY 2, 1913.

SIR: A study of petroleum and its products has never been comprehensively or thoroughly made within the United States.

As each year crude petroleum and gases are produced in the United States having a value in excess of $200,000,000, it is most important that a thorough study of these materials be undertaken.

This study should include the origin, geology, statistics, conservation, drilling methods, production, transportation, storage, refining, and uses of crude petroleum, and a critical and scientific description of petroleum products of all kinds, including gases and bitumens.

As the Bureau of Mines is seriously concerned in a better conservation of the crude petroleums and gases and in improving the products derived therefrom, and as it alone can not, at least within a reasonable time, accomplish the above desired results, I am asking you to attend a conference in the petroleum laboratories of the United States Bureau of Mines, Fortieth and Butler Streets, Pittsburgh, Pa., at 10 a. m., on Friday, August 1, 1913, for the purpose of organizing a scientific society for the study of these materials.

A similar letter is being sent to the secretaries of some 24 other important societies of the United States concerned wholly or in part with petroleum products, asking their attendance.

It is important that you yourself or your accredited representative be here at that time.

A reply stating your views on the above will be greatly appreciated. Subsequent notice as to replies received to this letter will be forwarded you.

The purpose of this letter was to bring together the most active and influential forces that would make for most efficient organization with the least delay. The response was unexpectedly large, as 23 of these societies replied.

RÉSUMÉ OF DISCUSSION.

Following the temporary chairman's remarks, the representatives present were asked to state their views as to the desirability of forming a society of national scope for the purpose of thoroughly studying petroleum.

The representatives of 14 societies made addresses strongly favoring the organization of a national petroleum society.

Seven of the societies invited sent no personal representatives, but sent letters stating that they were in favor of such an organization.

Two of the societies were not represented and sent no replies to the letters.

The only dissenting voices were those of the representatives of the American Institute of Mining Engineers and the American Society of Mechanical Engineers, each of whom considered it not advisable to establish an independent society but thought it advisable to form a committee for the study of petroleum that should be a subcommittee of some one of the already existing societies. The representative of the American Society for Testing Materials felt that his society would be the best qualified to study the specifications of petroleum products. However, through the discussions indicated, no one of the many societies now in existence is broad enough in its activities to cover completely the study of the petroleum industry.

VIEWS OF DIFFERENT REPRESENTATIVES.

The views expressed by representatives of the different societies are given in full or abstracted below.

B. A. Robinson, assistant secretary of the American Institute of Mining Engineers, spoke as follows:

> The American Institute of Mining Engineers believes that there is great need for the consideration of petroleum subjects, but is not in favor of the organization of another scientific society to cover this field, feeling that it is well within the province of the institute, acting in conjunction with kindred societies, adequately to care for it.
>
> The institute is forming a technical committee to be known as committee on petroleum and gas. This committee is to take up actively through its members the study of the origin, geology, statistics, drilling methods, transportation, storage, refining, and uses of crude petroleum; and a critical and scientific description of petroleum products of all kinds, including gases and bitumens. The purpose of the committee is to encourage the writing of papers on these subjects and the publication and discussion of the same.
>
> The success that has crowned the endeavors of our other technical committees and the enthusiasm aroused by the announcement of the formation of the committee on petroleum and gas, leads to the belief that the institute will prove a great force in advancing the technical side of the petroleum industry.
>
> The institute is cooperating with Dr. Holmes, the director of the Bureau of Mines, in the most friendly way, and stands ready further to cooperate in the field outlined in Dr. Allen's letter. It is hoped that these suggestions will be approved.

I. N. Knapp, representing the Natural Gas Association of America, stated that he was heartily in favor of forming a petroleum society, as information now available to the practical oil man did not in any way meet the demand and it was only through such an organization that thoroughly reliable and comprehensive information could be obtained.

Edgar Marburg, secretary of the American Society for Testing Materials, stated that although he had been invited to the conference in his official capacity as secretary, there had been no opportunity since the receipt of the invitation to present the matter to the executive committee of his society, and that it should be understood that he was prepared to express only his personal views.

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It seemed to him that interests of such magnitude and of so highly specialized a character as those relating to petroleum would be better served through an independent organization than through one of the established national technical societies. He hoped, however, that if such an organization should come into existence it would follow the example of other societies of a similar character by recognizing the premier position of the American Society for Testing Materials in the general field of the standardization of specifications and by intrusting to that organization the subject of specifications for petroleum products. He pointed out that a special committee of that society, charged with the study of this particular problem, has full freedom of action, including authority to enlarge its membership. It seemed to him undesirable and unnecessary that the proposed society should at this time attempt to write specifications for petroleum products.

J. A. Hawkins, representing the American Automobile Association, stated that automobile owners were decidedly interested in petroleum problems and that automobile engineers were trying to devise ways and means to use lower grades of gasoline in internal-combustion motors. As little has been accomplished in that direction and as the cost of the product should be reduced, he insisted that too many societies working in the same direction could not be formed.

He also stated that as the older societies acknowledge that they have neglected the subject, there should be a petroleum society formed, and he gave the assurance that the American Automobile Association would cooperate with such an organization as far as possible.

H. E. Longwell, representing the American Society of Mechanical Engineers, maintained that a section of one of the national societies would have a better standing and more adequate facilities for publishing the results of its work, and, in general, would be able to handle the subject more efficiently than an independent society. He stated further that an independent society would for years labor under many disadvantages, whereas, by affiliating with one of the national societies the proposed organization would be helped materially, and at the same time greater prestige would be given to its endeavors.

G. A. Hulett, of the Bureau of Mines, stated that the knowledge and technical study of the whole petroleum industry would be accelerated by the creation of such a society.

C. P. Light, representing the American Association for Highway Improvement, stated that a petroleum society should be organized on account of the immense field before it and because of the unlimited possibilities of the petroleum industry.

W. C. Platt, secretary of the Independent Petroleum Marketers' Association of the United States, contended that the greatest demand of the oil industry and those interested therein to-day is uniformity in the terminology of tests and of instruments. He saw the immediate need of uniformity, as every State at present has so-called oil inspection but lacks uniformity in the different instruments and tests.

W. O. Snelling, secretary of the American Association of Consulting Engineers, was heartily in favor of the formation of a society to cover the study of petroleum if the present scientific societies thought that the systematic study of petroleum could not be undertaken to best advantage through their medium. He was also in favor of a society representing the petroleum industry as a whole and not one dominated or controlled by any particular interest.

W. H. Coster, representing the National Fire Protection Association, suggested that the new society should be composed of the various other societies or sections of these societies interested in petroleum, and that by this means close cooperation could be brought about.

E. B. Rich, secretary of the Gasoline Producers' Association, stated that a society that could be utilized as a clearing house for data concerning the study of the petroleum industry that would bind together the various petroleum interests, and that would have the support of the able and efficient Bureau of Mines, must become a most powerful factor in the petroleum industry. He asserted that it would appeal to every producer, refiner, transporter, and marketer who had his own best interests at heart, to say nothing of the interests of posterity, as the current deplorable and almost universal waste of petroleum could undoubtedly be minimized by a wide study of conditions and methods.

Speaking as a producer, Mr. Rich stated that the industry was groping in the dark and that little accurate or even general information is available. The same errors are repeatedly made in the same territory by different operators, resulting in great economic loss. The various factors having known influence are imperfectly understood in their relations to each other—a well is drilled at so much per foot to an arbitrarily predetermined depth for loss or gain, and no questions are asked as to the purpose and the basic reason for the drilling.

The practical man and the scientist cooperating through the medium of an association can teach those desiring knowledge, prevent reckless wastes, and confer far-reaching benefits on the ultimate consumers.

G. D. Chamberlin, representing the American Chemical Society, maintained that if petroleum investigations should be carried on by a number of independent societies the information developed therefrom would not be as authoritative as that developed from one society devoting its entire time to the work and representing technical men and other persons of authority interested in petroleum. He advocated the standardization of methods through the medium of some recognized central authority, as he thought that the division of the information among several societies would result in confusion.

C. F. Clarkson, general manager of the Society of Automobile Engineers, favored the formation of a petroleum society if the present existing facilities did not comply with the present need. He stated that the Society of Automobile Engineers is vitally interested in obtaining exhaustive data as to the specification and use of hydrocarbons for internal-combustion and lubrication purposes, but is handicapped on account of the lack of funds to purchase apparatus and to conduct required tests.

E. K. Hiles, secretary of the Engineers' Society of Western Pennsylvania, stated that if the society was formed the Engineers' Society would endeavor to secure full and adequate discussion and would cheerfully help in the proceedings of the society.

C. D. Chamberlin, secretary of the National Petroleum Association, stated that the need for a society devoted to the study and investigation of the petroleum industry was clearly apparent to persons in any way connected with it. He also stated that the petroleum industry is unfortunate by reason of its sharp divisions. Geology, the branch of science that should be the foundation of a study of production, is little applied or understood even by the producer. This is illustrated by the term "wildcatter" applied to the prospector for oil-bearing strata. Nearly all oil production is accidental rather than scientific. When the producer finds oil he is simply a producer, and not a marketer, for he has no knowledge of the value of his product other than the posted price. He does not think of turning to chemistry to ascertain the properties of his product, and he knows only in a vague way what characteristics are valuable. When he has sold his crude he is no longer concerned with the industry. As the producers are not organized, they are not protected. The transporter is usually a part of a big concern whose chief aim is to get the product to the refining plant most expeditiously. He has little scientific knowledge and does at great economic waste what present conditions require of him. The refiner is not a chemist. Most refiners have only the knowledge gained by apprenticeship with an older refiner.

Mr. Chamberlin further asserted that there are no published aids and much that has been written is fragmentary, but that if the proposed society could gather the fragments and classify and record them so as to be helpful to all much would be gained to the industry. He said that knowledge should be drawn from all available sources and centered in the society.

APPOINTMENT AND PERSONNEL OF COMMITTEE ON ORGANIZATION.

As a result of the discussion the chairman was authorized to appoint a committee on organization. The following committee was appointed: C. D. Chamberlin, refiner, chairman; E. B. Rich, producer; W. C. Platt, tradesman; Edgar Marburg, scientist.

The conference then adjourned until 3 p. m. the same day.

CLOSING SESSION OF FIRST CONFERENCE.

At the reconvened conference the committee, through its chairman, C. D. Chamberlin, reported as follows:

> After carefully going over the situation and considering the addresses of this morning, your committee respectfully recommends that a petroleum society of national scope be organized, and to that end it has to report two articles of a constitution, as follows:
>
> This organization shall be known as the American Petroleum Society.
>
> The object of the society shall be to promote the science of petroleum technology; to obtain and circulate information thereon; and to obtain the cooperation of its members in conserving the petroleum resources of America.
>
> And further, the committee proposes that the temporary chairman appoint a committee on permanent organization who shall prepare a suitable constitution and bylaws and report the same at a meeting to be held September 10 next at the offices of the Bureau of Mines, Pittsburgh, Pa.

The report of the committee on organization was accepted and the committee was authorized to continue its work and to present a finished plan of organization at the second conference to be held in Pittsburgh, Pa., September 10, 1913. The conference then adjourned.

INVITATIONS ISSUED FOR SECOND CONFERENCE.

In the interim between the adjournment of the first conference and the convening of the second, invitations were sent to the following 7 societies in addition to the 25 already invited:

American Gas Institute, G. G. Ramsdell, secretary and treasurer, 29 West Thirty-ninth Street, New York City; Society of Chemical Industry (local section), P. C. McIlhiney, honorary secretary, 7 East Forty-second Street, New York City; American Electrochemical Society, J. W. Richards, secretary, Lehigh University, South Bethlehem, Pa.; American Association for the Advancement of Science, L. O. Howard, secretary, Smithsonian Institution, Washington, D. C., represented by O. P. Hood, Bureau of Mines, Pittsburgh, Pa.; The Chamber of Commerce of the United States of America, E. H. Goodwin, secretary, Riggs Building, Washington, D. C.; Washington Academy of Sciences, G. K. Burgess, corresponding secretary, Washington, D. C.; Illuminating Engineering Society, W. A. Donkin, secretary, 435 Sixth Avenue, Pittsburgh, Pa.

SECOND CONFERENCE.

The second conference was held at the Pittsburgh experiment station of the Bureau of Mines on September 10. The report of the committee on organization on the constitution and by-laws (pp. 16 to 19) was unanimously adopted.

The chairman was authorized to appoint a committee on nominations of officers. This committee was appointed, as follows: H. M. Wilson, American Mine Safety Association; Harry H. Willock, National Petroleum Association; H. H. Craver, American Chemical Society.

The committee, after deliberation, reported a complete list of officers as given below:

President, C. D. Chamberlin, National Petroleum Association, Cleveland, Ohio; vice president, R. Galbreath, Independent Oil and Gas Producers' Association of Oklahoma, Tulsa, Okla.; secretary, Irving C. Allen, Bureau of Mines, Pittsburgh, Pa., treasurer, Warren C. Platt, Independent Petroleum Marketers' Association of the United States, Cleveland, Ohio; acting past president, Frank B. Fretter, Western Petroleum Refiners' Association, Coffeyville, Kans.; executive committee: Ralph Arnold, Geological Society of America, Los Angeles, Cal.; C. F. Clarkson, Society of Automobile Engineers, New York City; G. M. Swindell, Chamber of Mines & Oil, Los Angeles, Cal.; Edmund O'Neill, American Chemical Society, University of California, Berkeley, Cal.; E. B. Rich, Gasoline Producers' Association, Parkersburg, W. Va.; G. H. Taber, Gulf Refining Co., Port Arthur, Tex.

The report of the committee was unanimously adopted.

The conference then adjourned.

CONSTITUTION OF THE AMERICAN PETROLEUM SOCIETY.[a]

ARTICLE I.

NAME.

This organization shall be known as the American Petroleum Society.

ARTICLE II.

OBJECT.

The object of the society shall be to promote the science of petroleum technology; to obtain and circulate information thereon; and to obtain the cooperation of its members in conserving the petroleum resources of America.

ARTICLE III.

MEMBERSHIP.

SECTION 1. The membership shall consist of (*a*) sustaining members, (*b*) active members, and (*c*) honorary members.

It is understood that through membership none is pledged to any course of action.

SEC. 2. Any person or organization interested in the promotion of petroleum technology may be nominated for election to membership.

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[a] Petroleum is understood to include natural gas and bitumen.

SEC. 3. Any person or organization that shall have been nominated in writing by three members of the society, that shall have paid the first year's membership dues, and whose nomination shall have been indorsed by a majority of the executive committee, shall be declared elected a member of the society, and the declaration shall be made public by the secretary on receipt of said indorsement.

SEC. 4. *Sustaining members.*—National and State institutes, societies, associations, national, State, and municipal departments and bureaus, boards of trade, chambers of commerce, and similar business associations, insurance boards and associations, and firms and corporations shall be eligible for sustaining membership.

SEC. 5. *Active members.*—Individuals and libraries shall be eligible for active membership.

SEC. 6. *Honorary members.*—Honorary life membership may be conferred on any person who for more than 10 years has rendered exceptional service in the science of petroleum technology. A favorable report by the executive committee and a majority vote of the society at any regularly called meeting shall be necessary to elect. This membership carries with it all the privileges of sustaining and active members except the right to vote. Honorary members shall not be subject to dues.

ARTICLE IV.

OFFICERS AND MANNER OF ELECTION.

SECTION 1. The officers shall be a president, a vice president, a secretary. and a treasurer.

SEC. 2. These officers shall be elected by letter ballot at the first annual meeting; the president and secretary for a term of three years; the vice president and treasurer for a term of two years; and thereafter each for a term of two years.

SEC. 3. The executive committee shall consist of the aforesaid officers, the last past president, and six other members, who shall be elected by letter ballot at the first annual meeting, two for a term of one year, two for a term of two years, and two for a term of three years, and thereafter each of such six members shall be elected for a term of two years.

SEC. 4. The secretary shall receive a salary to be fixed by the executive committee.

SEC. 5. The officers and members of the executive committee shall serve for the respective terms to which they shall have been elected, or until their successors shall have been duly elected.

SEC. 6. The executive committee shall have the power to fill any vacancies occurring in their number by death, resignation, or otherwise.

ARTICLE V.

NOMINATION OF OFFICERS.

SECTION 1. The executive committee, before each annual meeting, shall appoint a nominating committee, whose duty it shall be to submit a list of officers for election. The list of nominations so made shall be submitted to the membership not more than ten nor less than six weeks before the coming annual meeting.

SEC. 2. Further nominations, signed by at least ten members, may be submitted to the secretary in writing at least four weeks before the annual meeting, and such nominations shall also be submitted to the membership on the official ballot.

ARTICLE VI.

DUTIES OF OFFICERS.

SECTION 1. The duties of all officers shall be such as usually pertain to their offices or may be assigned by the society.

SEC. 2. The president and secretary shall be ex officio members of all committees except the nominating committee, and each may appoint as his proxy any other officer of the society.

SEC. 3. The executive committee shall have general charge of the affairs of the society, direct the expenditures, and audit the accounts of the treasurer. Five members shall constitute a quorum for the transaction of business.

ARTICLE VII.

COMMITTEES.

SECTION 1. Appointments to special committees shall be on recommendations of the president, vice president, and secretary, subject to the approval of the executive committee.

SEC. 2. In response to invitation the president may appoint a delegate or delegates to represent the society at meetings of other organizations.

ARTICLE VIII.

QUORUM.

SECTION 1. Each active member and one representative of each sustaining member represented shall be entitled to vote, and in order to transact business there shall be 25 voting members present.

ARTICLE IX.

MEETINGS.

SECTION 1. The society shall meet annually. The time and place of each meeting shall be fixed by the executive committee.

SEC. 2. Special meetings may be called whenever the executive committee shall deem it necessary, or upon the request of 25 members in writing to the president.

ARTICLE X.

DUES.

SECTION 1. The fiscal year shall commence in 1913 on the 1st of August and the dues from August 1, 1913, to December 31, 1914, shall be $25 for sustaining members and $5 for active members, payable in advance.

SEC. 2. The fiscal year after December 31, 1914, shall begin on the 1st of January, and the annual dues from and after January 1, 1914, shall be $25 for sustaining members and $5 for active members, payable in advance.

SEC. 3. An individual holding active membership may compound his dues at the beginning of any fiscal year by the purchase of a life membership, exempting him for life from annual dues, by the payment of the sum of $150, provided such membership is held by an individual.

SEC. 4. The cost of membership in perpetuity to sustaining members and libraries shall be $500.

ARTICLE XI.

SUSPENSIONS.

SECTION 1. Any member of the society whose dues shall remain unpaid for a period of three months from the beginning of the fiscal year shall receive a "second notice" from the treasurer; if his dues shall remain unpaid for a period of five months from the beginning of the fiscal year, he shall forfeit the right to vote and to receive the publications of the society. A month before the close of the fiscal year he shall receive a final notice from the treasurer to the effect that if he neglects to pay his dues before the end of the fiscal year, his name may be stricken from the roll of membership by the executive committee.

ARTICLE XII.

DELAYED MEMBERSHIP.

SECTION 1. Any person elected after six months of any fiscal year shall have expired shall pay only one-half of the amount of dues for that fiscal year; but he shall not be entitled to a copy of the proceedings of the previous annual meeting.

ARTICLE XIII.

RESIGNATIONS.

SECTION 1. The resignation of a member whose dues for the current fiscal year are unpaid shall be acceptable only if it be received within one month from the beginning of the fiscal year, unless an exception be authorized by special action of the executive committee.

ARTICLE XIV.

AMENDMENTS.

SECTION 1. Proposed amendments to this constitution, signed by at least three members, must be presented in writing to the executive committee at least six weeks before the next annual meeting. In the notices for this meeting the proposed amendments shall be printed. At the annual meeting the proposed amendment may be discussed and amended and may be passed to letter ballot by a two-thirds vote of those present. If two-thirds of the votes obtained by letter ballot are in favor of the proposed amendment, it shall be adopted.

SEC. 2. The executive committee is authorized to number the articles and sections of the constitution to correspond with any changes that may be made.

PUBLICATIONS ON PETROLEUM TECHNOLOGY.

The following Bureau of Mines publications may be obtained free by applying to the Director, Bureau of Mines, Washington, D. C.:

BULLETIN 19. Physical and chemical properties of the petroleums of the San Joaquin Valley, Cal., by I. C. Allen and W. A. Jacobs, with a chapter on analyses of natural gas from the southern California oil fields, by G. A. Burrell. 1911. 60 pp., 2 pls., 10 figs.

TECHNICAL PAPER 3. Specifications for the purchase of fuel oil for the Government, with directions for sampling oil and natural gas, by I. C. Allen. 1911. 13 pp.

TECHNICAL PAPER 10. Liquefied products from natural gas; their properties and uses, by I. C. Allen and G. A. Burrell. 1912. 23 pp.

TECHNICAL PAPER 25. Methods for the determination of water in petroleum and its products, by I. C. Allen and W. A. Jacobs. 1912. 13 pp., 2 figs.

TECHNICAL PAPER 26. Methods of determining the sulphur content of fuels, especially petroleum products, by I. C. Allen and I. W. Robertson. 1912. 13 pp., 1 fig.

TECHNICAL PAPER 32. The cementing process of excluding water from oil wells as practiced in California, by Ralph Arnold and V. R. Garfias. 1913. 12 pp., 1 fig.

TECHNICAL PAPER 36. The preparation of specifications for petroleum products, by I. C. Allen. 1913. 12 pp.

TECHNICAL PAPER 37. Heavy oil as fuel for internal-combustion engines, by I. C. Allen. 1913. 36 pp.

TECHNICAL PAPER 38. Wastes in the production and utilization of natural gas, and means for their prevention, by Ralph Arnold and F. G. Clapp. 1913. 29 pp.

TECHNICAL PAPER 42. The prevention of waste of oil and gas from flowing wells in California, with a discussion of special methods used by J. A. Pollard, by Ralph Arnold and V. R. Garfias. 1913. 15 pp., 2 pls., 4 figs.

TECHNICAL PAPER 49. The flash point of oils; methods and apparatus for its determination, by I. C. Allen and A. S. Crossfield. 1913. 31 pp., 2 figs.

TECHNICAL PAPER 51. Possible causes of the decline of oil wells and suggested methods of prolonging yield, by L. G. Huntley. 1913. 32 pp., 9 figs.

TECHNICAL PAPER 57. A preliminary report on the utilization of petroleum and natural gas in Wyoming, by W. R. Calvert, with a discussion of the suitability of natural gas for making gasoline, by G. A. Burrell. 1913. 23 pp.

TECHNICAL PAPER 66. Mud-laden fluid applied to well drilling, by J. A. Pollard and A. G. Heggem. 1914. 21 pp., 12 figs.

20